FIG. 1

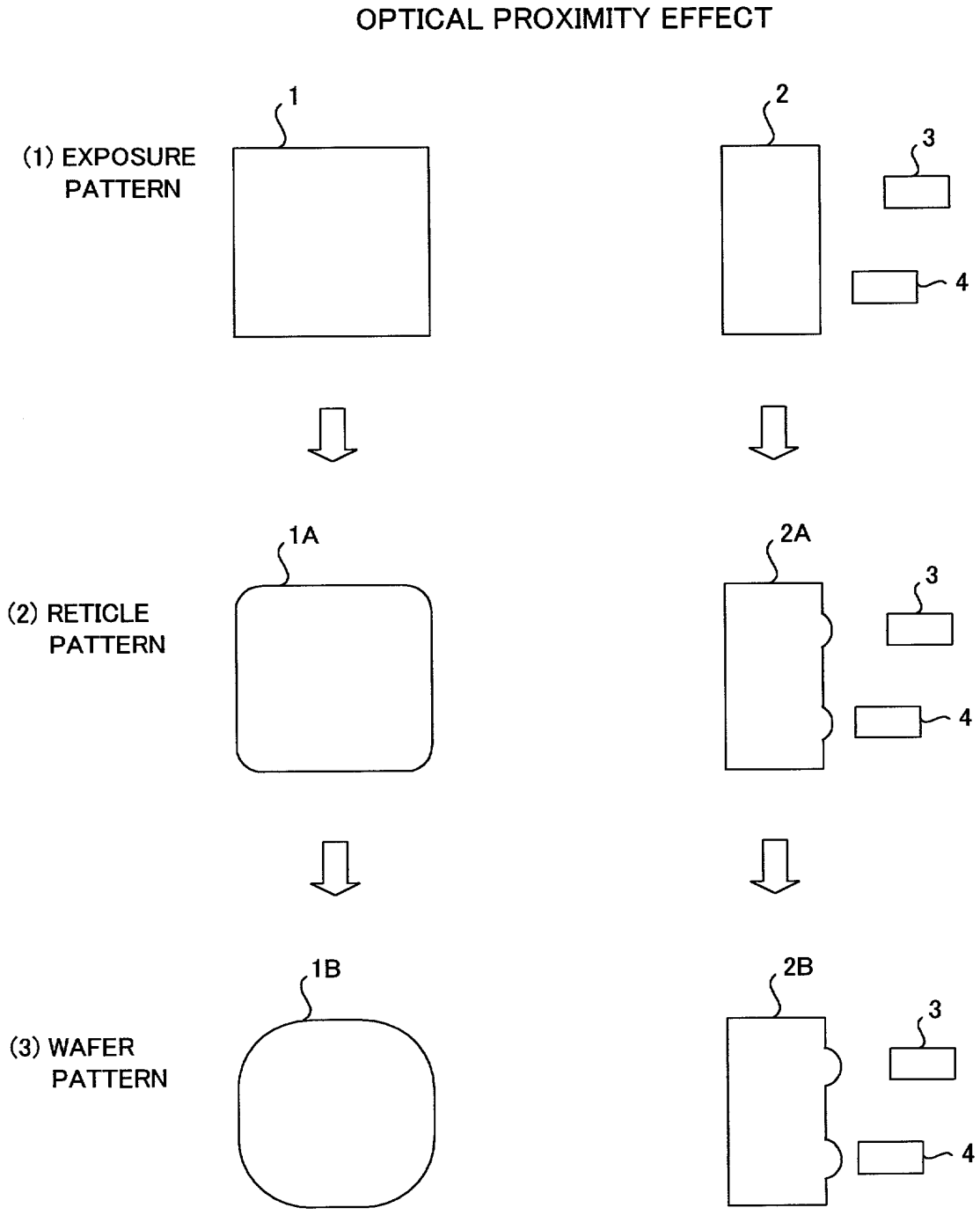

OPTICAL PROXIMITY EFFECT
(1) EXPOSURE PATTERN
(2) RETICLE PATTERN
(3) WAFER PATTERN
1
2
3
4
1A
2A
1B
2B

FIG. 2

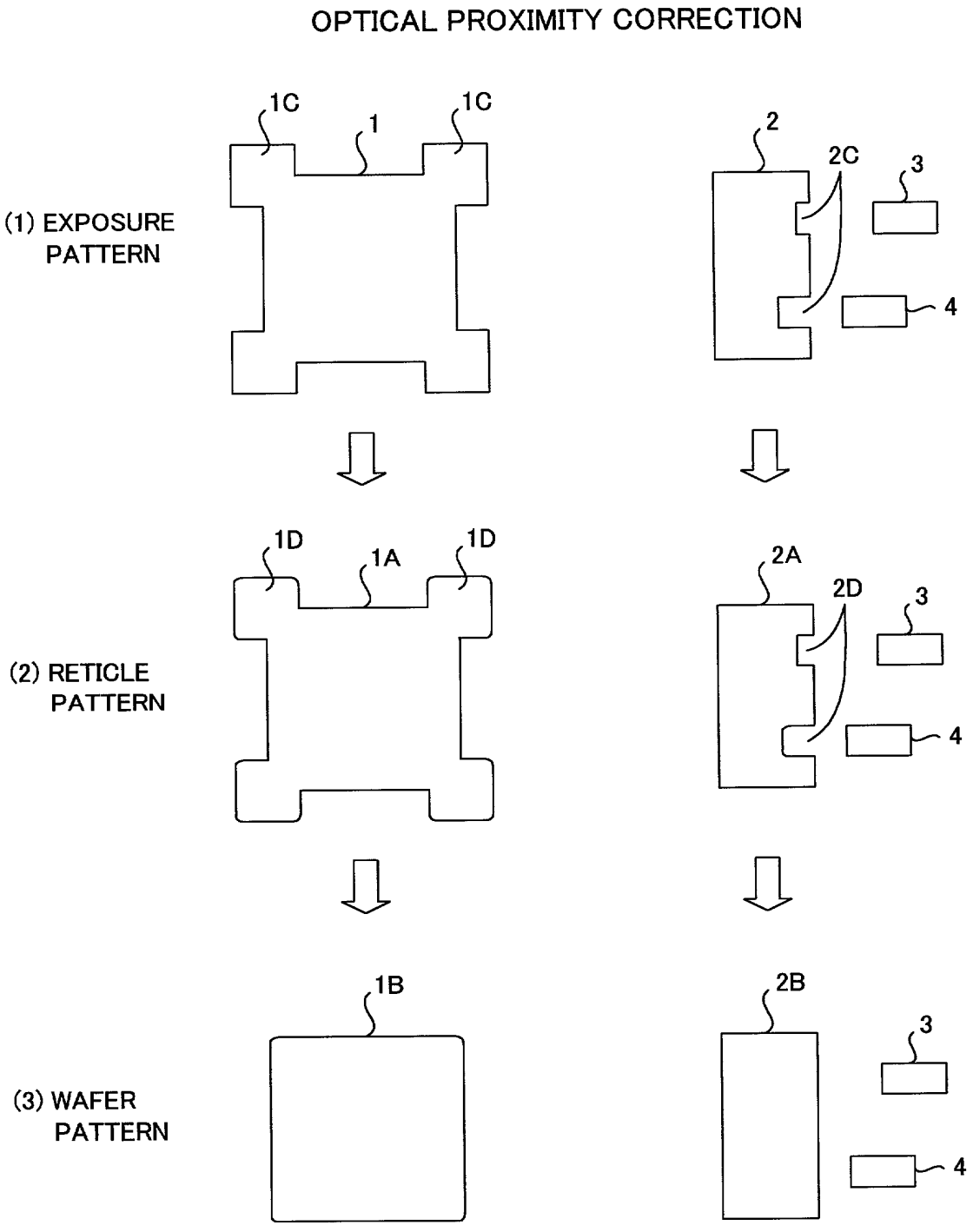
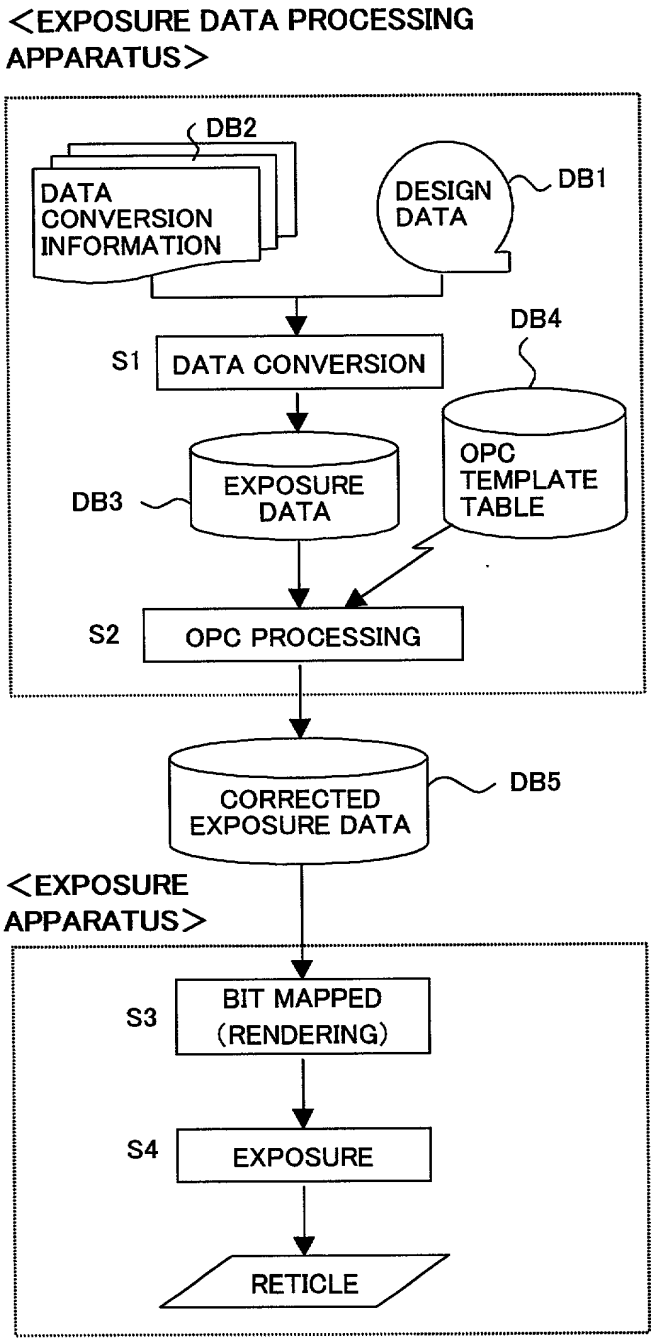

OPTICAL PROXIMITY CORRECTION
(1) EXPOSURE PATTERN
(2) RETICLE PATTERN
(3) WAFER PATTERN
1C
1
1C
2
2C
3
4
1D
1A
1D
2A
2D
3
4
1B
2B
3
4

FIG. 3

FIRST OPC PROCESSING



FIRST OPC PROCESSING

FIG. 4A

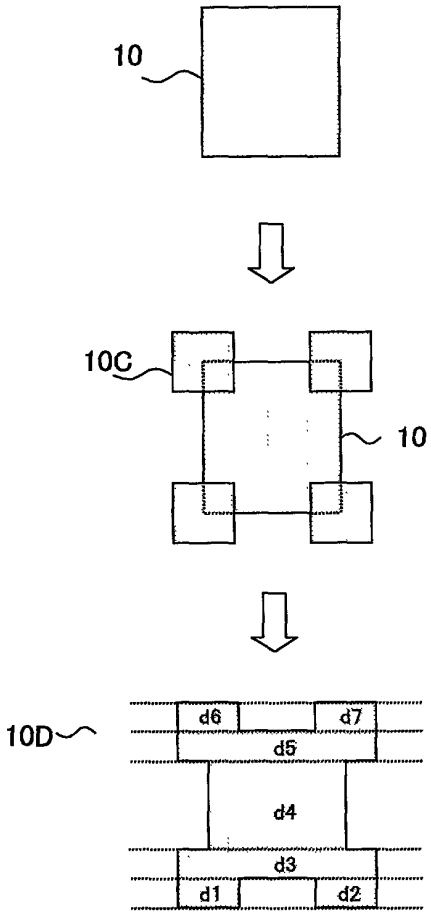


FIG. 4B

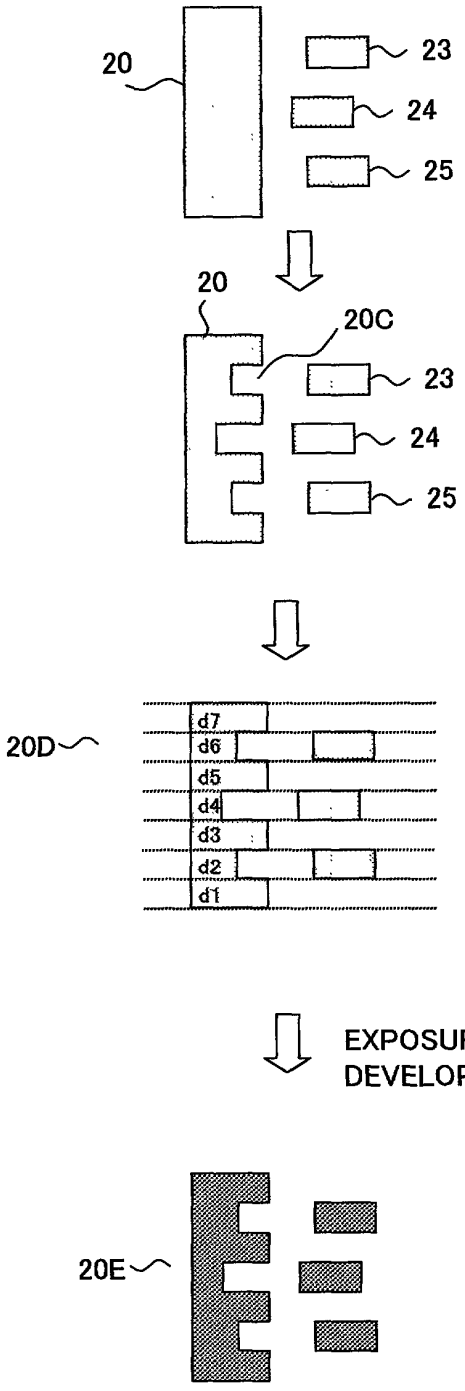
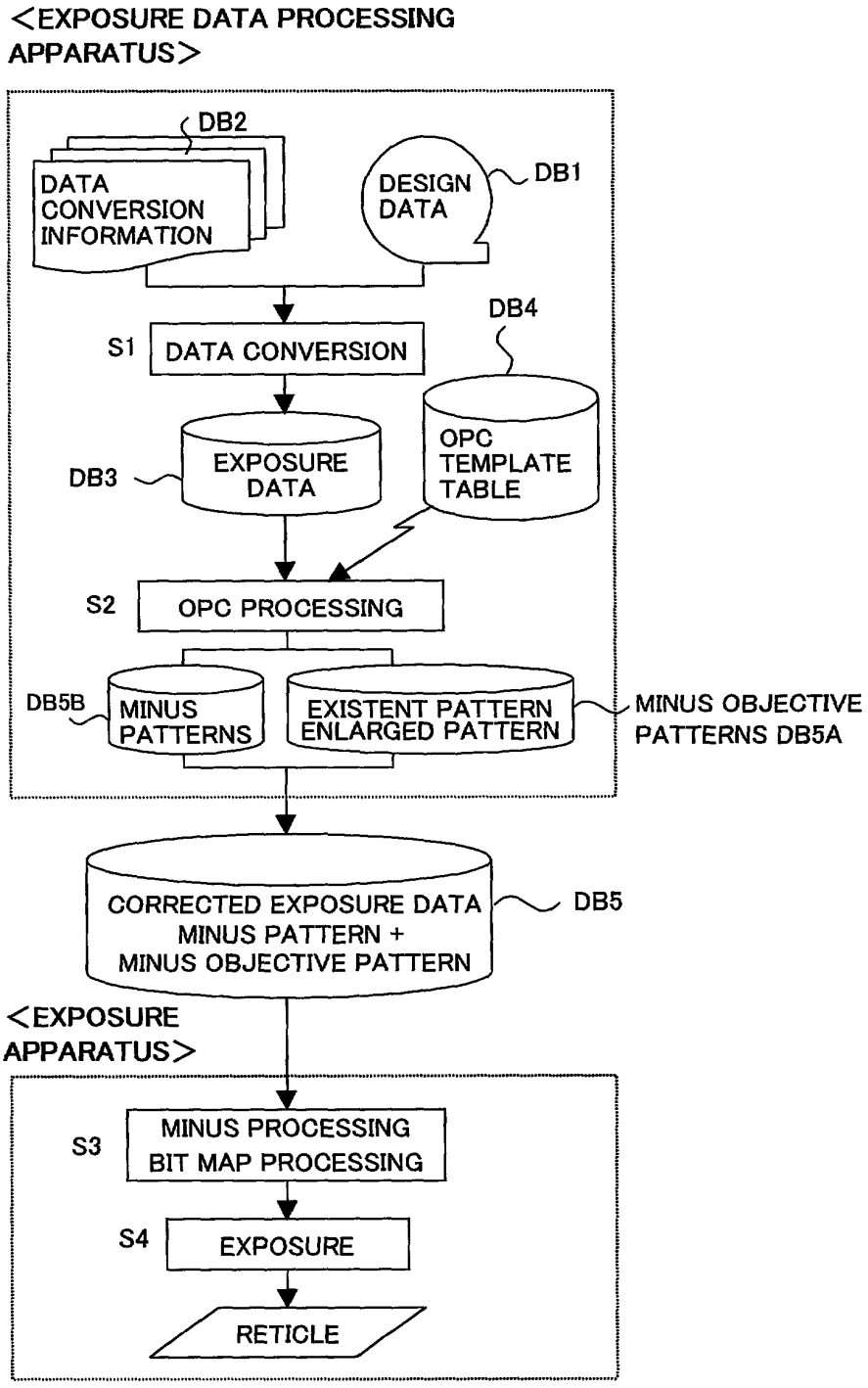


FIG. 5

SECOND OPC PROCESSING



SECOND OPC PROCESSING

FIG. 6A

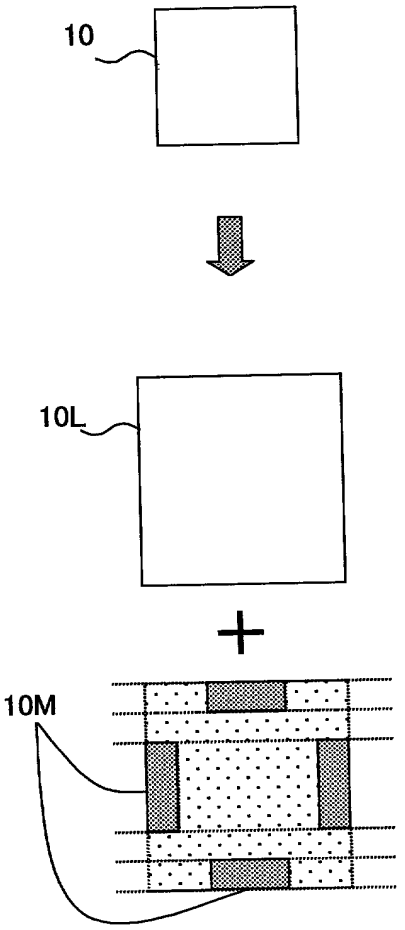


FIG. 6B

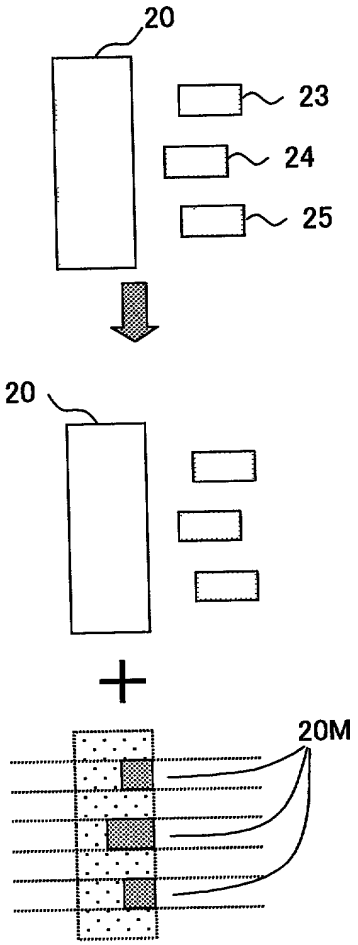


FIG. 7

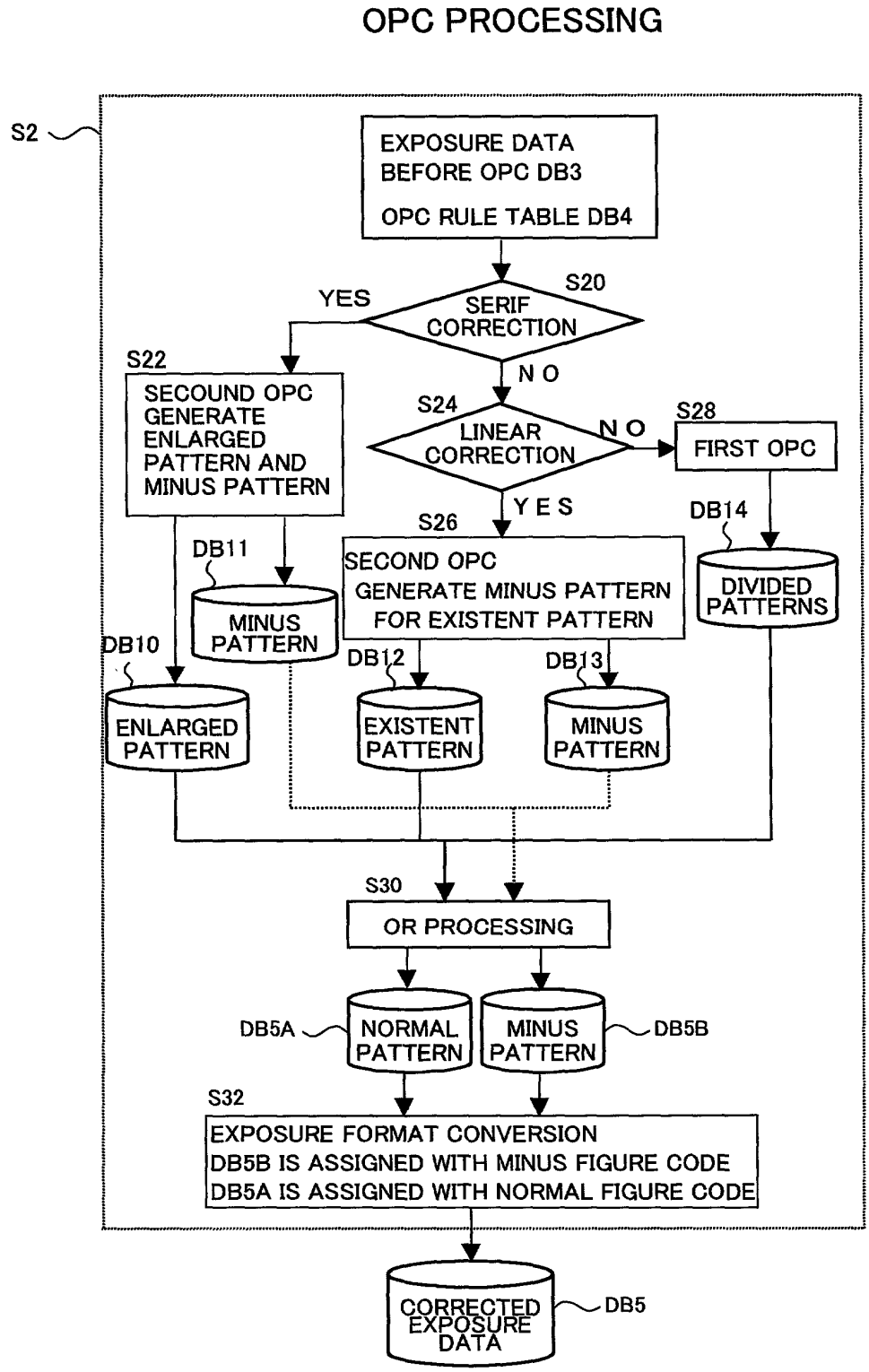

OPC PROCESSING
S2
EXPOSURE DATA BEFORE OPC DB3
OPC RULE TABLE DB4
S20
SERIF CORRECTION
YES
NO
S22
SECOUND OPC GENERATE ENLARGED PATTERN AND MINUS PATTERN
S24
LINEAR CORRECTION
NO
S28
FIRST OPC
YES
S26
SECOND OPC GENERATE MINUS PATTERN FOR EXISTENT PATTERN
DB14
DIVIDED PATTERNS
DB11
MINUS PATTERN
DB10
ENLARGED PATTERN
DB12
EXISTENT PATTERN
DB13
MINUS PATTERN
S30
OR PROCESSING
DB5A
NORMAL PATTERN
MINUS PATTERN
DB5B
S32
EXPOSURE FORMAT CONVERSION
DB5B IS ASSIGNED WITH MINUS FIGURE CODE
DB5A IS ASSIGNED WITH NORMAL FIGURE CODE
CORRECTED EXPOSURE DATA
DB5

FIG. 8A

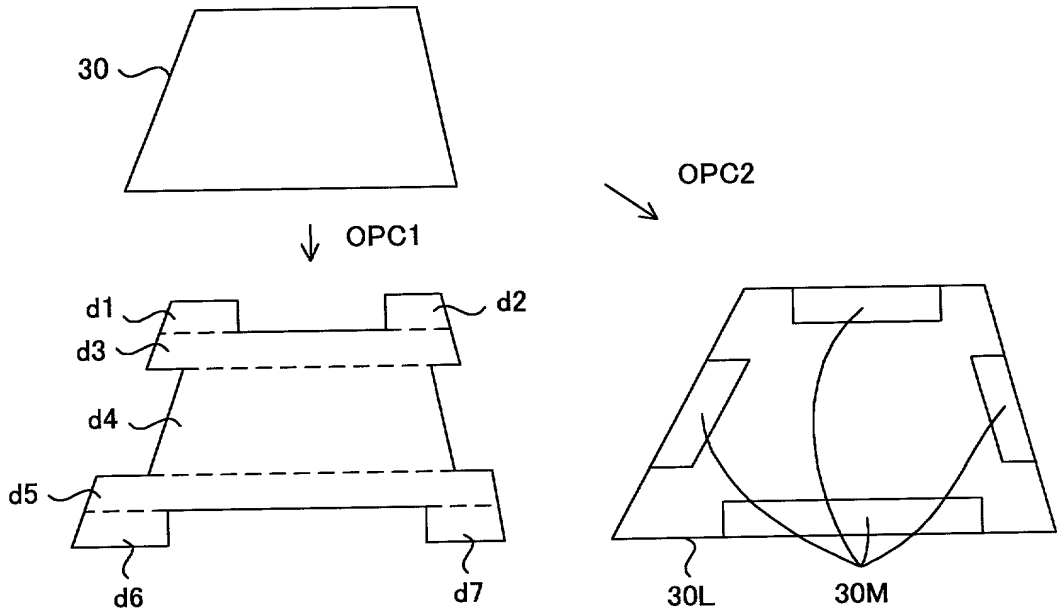

30
OPC1
OPC2
d1
d2
d3
d4
d5
d6
d7
30L
30M

FIG. 8B

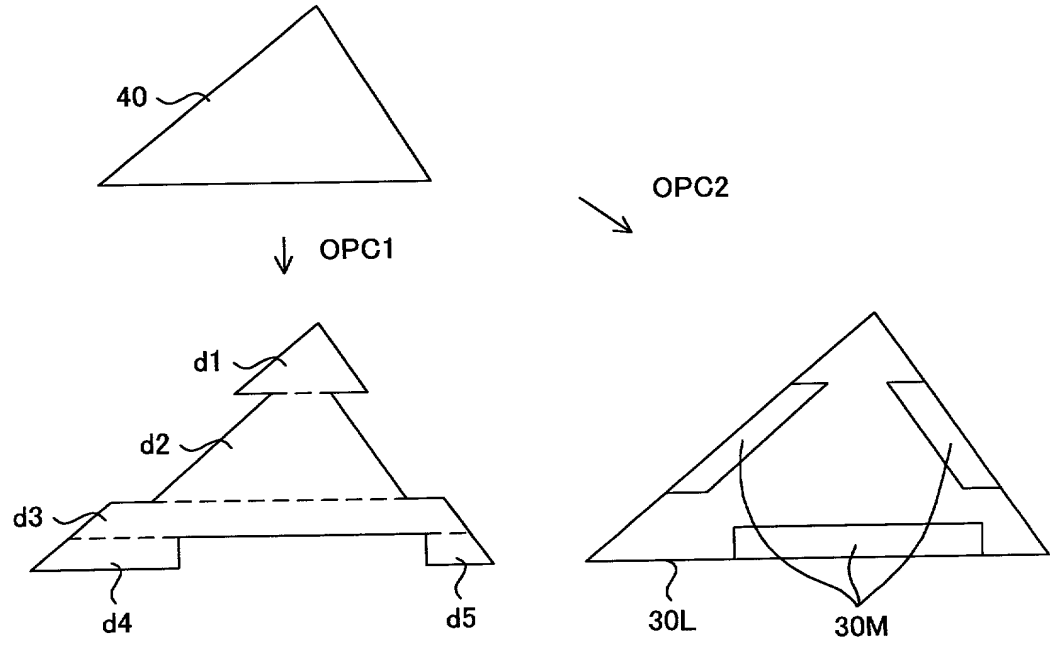

40
OPC1
OPC2
d1
d2
d3
d4
d5
30L
30M

FIG. 9A

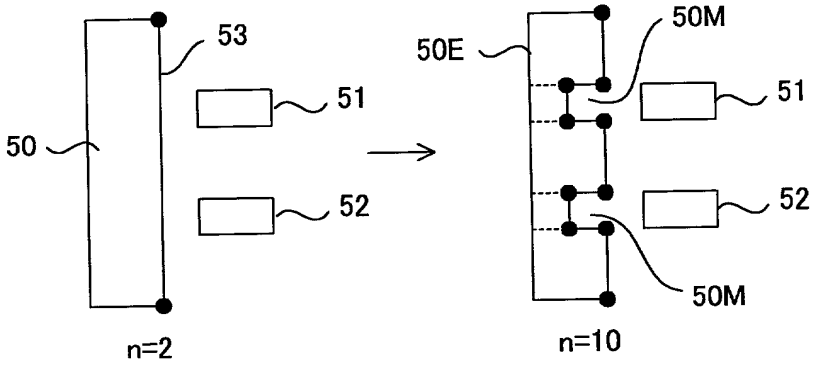


FIG. 9B

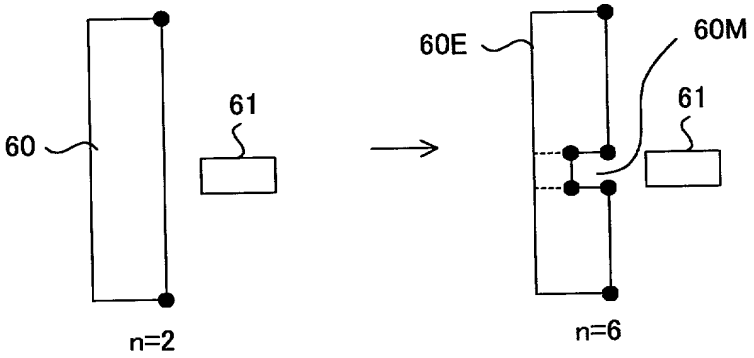


FIG. 9C

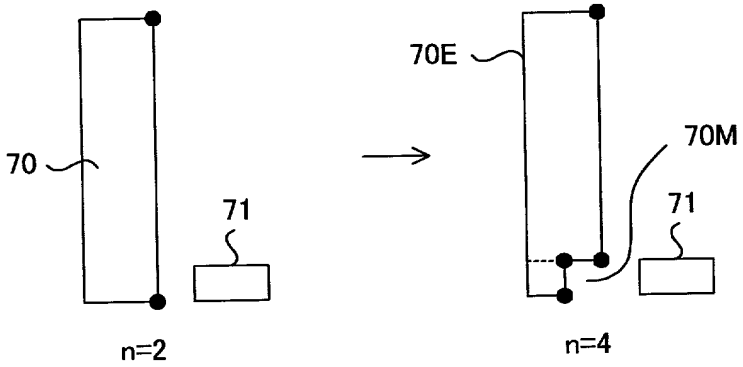


FIG. 10

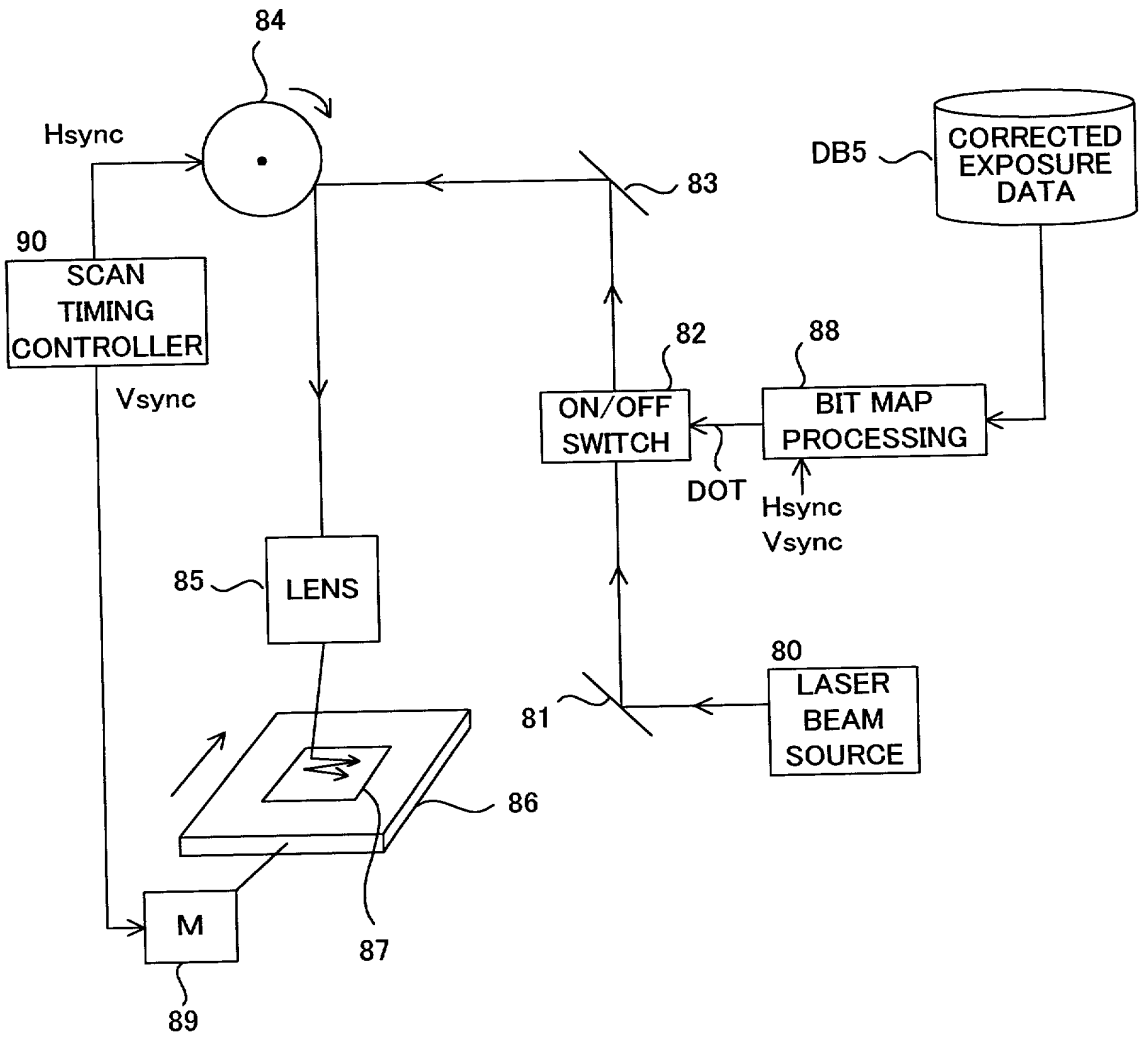

84
Hsync
DB5
CORRECTED EXPOSURE DATA
83
90
SCAN TIMING CONTROLLER
82
88
Vsync
ON/OFF SWITCH
BIT MAP PROCESSING
DOT
Hsync
Vsync
85
LENS
80
LASER BEAM SOURCE
81
86
M
87
89

FIG. 11

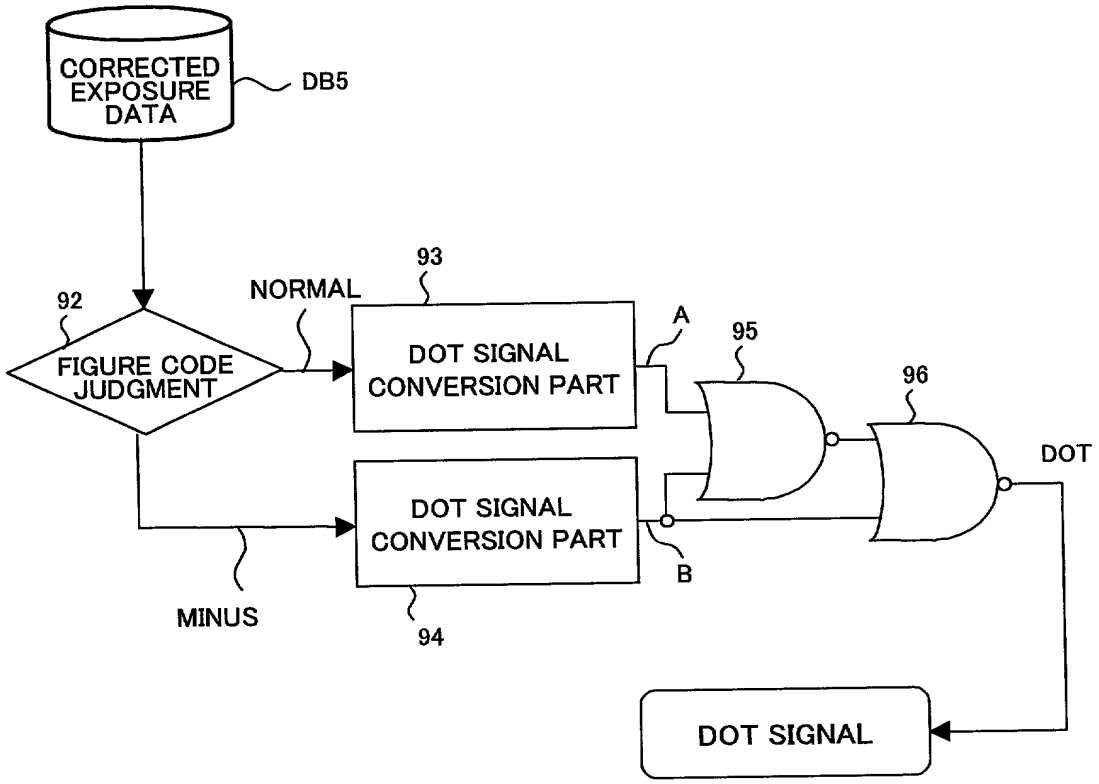


FIG. 12

A	B	DOT SIGNAL
0	0	0
0	1	0
1	0	1
1	1	0